AMENDMENTS TO THE CLAIMS

Please add or amend the claims to read as follows, and cancel without prejudice or disclaimer to resubmission in a divisional or continuation application claims indicated as cancelled:

1-2 (canceled)

3. (Previously presented) A method comprising:

estimating a first value of a parameter for canceling an in-phase/quadrature phase mismatch of an in-phase/quadrature phase modulator; and

estimating a second value of the parameter for canceling an in-phase/quadrature phase mismatch of an in-phase/quadrature phase demodulator.

4. (Previously presented) A method according to claim 3, comprising:

passing the first values through the in-phase and quadrature phase modulator in a processing path of a communication device and passing the second value through the in-phase/quadrature phase demodulator in a reverse path of the communication device.

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5 – 6. (Canceled)

7. (Previously presented) A method according to claim 3, comprising:

estimating the first and second values of the parameter by accumulating a predetermined number of pairs of provided values and respective distorted values and estimating said first and second values from the accumulated pairs.

8. (Previously presented) A method according to claim 7, wherein accumulating a predetermined number of pairs comprises accumulating a number of pairs transmitted during a single transmission slot.

9. (Previously presented) A method according to claim 3, comprising:

passing values for processing through a multiplier which performs an in-phase/quadrature phase mismatch cancellation based on current values of an estimated parameter.

10. (Previously presented) A method according to claim 9, wherein estimating the parameter comprises determining a next step correction of the current value of the estimated parameter.

11. (Previously presented) A method according to claim 7, comprising repeating the estimating of the parameter a predetermined number of repetitions.

12. (Previously presented) A method according to claim 7, comprising retrieving initial values of parameter.

13. (Previously presented) A method according to claim 7, comprising storing an estimated value of the parameter for later use.

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14. (Previously presented) A method according to claim 3, comprising providing values generated for the in-phase and quadrature phase mismatch cancellation method to a processing path.

15. (Previously presented) A method according to claim 14, wherein providing the values to the processing path comprises providing values generated without relation to the in-phase and quadrature phase mismatch cancellation method.

16. (Previously presented) A method according to claim 14, comprising: passing the values through a non-linear element.

17. (Currently amended) A method comprising:

estimating a complex-valued base band equivalent gain of an amplification unit of a communication device;

approximating values of a matriex representing an in-phase and quadrature phase mismatch effect of the communication device based on an in-phase and quadrature phase mismatch cancellation parameter; and

selecting a value of the in-phase/quadrature phase mismatch cancellation parameter to minimize a cost function which depends on the estimated complex-valued base band equivalent gain and the approximated matrix.

18. (Original) A method according to claim 17, wherein estimating the complex valued gain comprises estimating separately for each value passed through the communication device.

19. (Original) A method according to claim 17, wherein estimating the complex valued gain comprises estimating once for a plurality of accumulated values passed through the communication device.

20. (Previously presented) A communication device comprising:

a trainer to provide an in-phase/quadrature phase mismatch cancellation parameter responsive to values received from both an input and an output of an in-phase/quadrature phase modulator and from an input and an output of an in-phase/quadrature phase demodulator to an in-phase/quadrature phase cancellation unit.

21. (Previously presented) A communication device according to claim 20, wherein the trainer does not have inputs from any point between the in-phase/quadrature phase modulator and the in-phase/quadrature phase demodulator.

22. (Previously presented) A communication device according to claim 20 comprising a non-linear element between the IQ modulator and the IQ demodulator.

23. (Previously presented) A communication device according to claim 20, wherein the trainer comprises:

a determination unit to determine a value of the in-phase/quadrature phase mismatch parameter which minimizes a cost function based on values received from both the in-phase/quadrature phase modulator and the in-phase/quadrature phase demodulator.

24. (Previously presented) A communication device according to claim 23, comprising:

two or more cancellation units wherein the determination unit is adapted to determine the in-phase/quadrature phase mismatch parameter of the two or more cancellation units.

25. (Previously presented) A communication device according to claim 23, wherein the determination unit is adapted to determine the in-phase/quadrature phase mismatch parameter iteratively.

26-30. (Canceled)

31. (Currently Amended) A transmitter comprising:

a mismatch trainer to adjust a value of one or more of an in-phase mismatch parameter and quadrature phase mismatch parameter; and

a ~~feedback~~ reverse conversion unit, coupled with the mismatch trainer, having a demodulator, a correction matrix and a mismatch multiplier, ~~of the demodulator and~~ the mismatch trainer ~~is adapted~~ to ~~adjust parameters of~~ provide the one or more in-phase and/or quadrature phase parameter as correction values to the correction matrix to be used by the mismatch multiplier to cancel mismatch effects of the demodulator.

32. (Currently Amended) A transmitter according to claim 31, comprising:

~~mismatch adjustment circuitry~~ an in-phase/quadrature phase correction unit coupled with the mismatch trainer ~~adapted~~ to adjust signals entering an in-phase/quadrature phase modulator ~~in order~~ to cancel mismatch effects of the modulator, ~~and~~ wherein the in-phase/quadrature phase correction unit ~~mismatch adjustment circuitry~~ includes a matrix multiplier and a correction matrix.

33. (Previously presented) A transmitter according to claim 31, wherein the mismatch trainer is adapted to adjust the mismatch parameter iteratively.

34. (Currently Amended) A transmitter according to claim ~~31~~ 32, ~~comprising a processor which includes a predistorter, a predistorter trainer, mismatch adjustment circuitry and~~

wherein the mismatch trainer and the in-phase/quadrature phase correction unit are implemented by software on a processor.

35. (Original) A method of assigning values to parameters for IQ mismatch cancellation of a transmitter, comprising:

transmitting values by the transmitter;

estimating at least one parameter for cancellation of IQ mismatch effects of the transmitter responsive to the values transmitted during a first period; and

adjusting the at least one parameter estimated responsive to the values transmitted during a first period responsive to values transmitted during a second period, which second period is separated from the first period by a rest period in which the transmitted values are not used to adjust parameters for IQ mismatch cancellation.

36. (Original) A method according to claim 35, wherein the values transmitted during the rest period are used for adjusting a predistorter of the transmitter.

37. (Original) A method according to claim 36, comprising adjusting the predistorter based on values transmitted before the first period